

7
CLAIMS

1. A process for production of hydrogen peroxide according to the anthraquinone process including alternate hydrogenation and oxidation of one or more quinones selected from the group consisting of anthraquinones and tetrahydro anthraquinones, in a working solution comprising at least one quinone solvent and at least one hydroquinone solvent, wherein said at least one quinone solvent comprises isodurene in an amount from 15 to 100 wt%.

2. A process as claimed in claim 1, wherein said at least one quinone solvent comprises from about 20 to about 80 wt% of isodurene.

10 3. A process as claimed in claim 1, wherein the working solution comprises from about 25 to about 70 wt% of isodurene.

4. A process as claimed in claim 1, wherein said at least one quinone solvent additionally comprises durene and the total amount of isodurene and durene constitutes from about 30 to about 100 wt% of the quinone solvents.

15 5. A process as claimed in claim 1, wherein said at least one quinone solvent additionally comprises durene and the content of durene does not exceed about 25 wt% of total amount of quinone solvents.

6. A process as claimed in claim 4, wherein the weight ratio isodurene to durene in the working solution is from about 1.5:1 to about 5:1.

20 7. A process as claimed in claim 1, wherein said at least one hydroquinone solvent comprises one or more compounds selected from the group consisting of di-isobutyl carbinol and tetrabutyl urea.

8. A process as claimed in claim 1, wherein the molar ratio of tetrahydroanthraquinones to anthraquinones in the working solution to be hydrogenated exceeds 1:1.

9. A process as claimed in claim 8, wherein the molar ratio of tetrahydroanthraquinones to anthraquinones in the working solution to be hydrogenated is from about 2:1 to about 50:1.

10. A process as claimed in claim 1, wherein from about 50 to about 100 mole % of
30 the anthraquinones and the tetrahydro anthraquinones are substituted with one ethyl
group.

11. A process as claimed in claim 1, wherein the density, measured at 20°C, is from about 910 to about 980 kg/m³.

12. A process for production of hydrogen peroxide according to the anthraquinone
35 process including alternate hydrogenation and oxidation of one or more quinones
selected from the group consisting of anthraquinones and tetrahydro anthraquinones, in a
working solution comprising at least one quinone solvent and at least one hydroquinone

solvent, wherein said at least one quinone solvent comprises isodurene in an amount from 15 to 100 wt% and additionally durene in an amount not exceeding about 25 wt% of total amount of quinone solvents, the total amount of isodurene and durene constitutes from about 30 to about 100 wt% of the quinone solvents

5 13. A process as claimed in claim 12, wherein said at least one quinone solvent comprises from about 20 to about 80 wt% of isodurene.

14. A process as claimed in claim 12, wherein the working solution comprises from about 25 to about 70 wt% of isodurene.

10 15. A process as claimed in claim 12, wherein the weight ratio isodurene to durene in the working solution is from about 1.5:1 to about 5:1.

16. A process as claimed in claim 12, wherein said at least one hydroquinone solvent comprises one or more compounds selected from the group consisting of di-isobutyl carbinol and tetrabutyl urea.

15 17. A process as claimed in claim 12, wherein the molar ratio of tetrahydro anthraquinones to anthraquinones in the working solution to be hydrogenated exceeds 1:1.

18. A process as claimed in claim 17, wherein the molar ratio of tetrahydro anthraquinones to anthraquinones in the working solution to be hydrogenated is from about 2:1 to about 50:1.

20 19. A process as claimed in claim 12, wherein from about 50 to about 100 mole % of the anthraquinones and the tetrahydro anthraquinones are substituted with one ethyl group.

25 20. Composition useful as a working solution at production of hydrogen peroxide with the anthraquinone process comprising one or more quinones selected from the group consisting of anthraquinones and tetrahydro anthraquinones, dissolved in at least one quinone solvent and at least one hydroquinone solvent, wherein said at least one quinone solvent comprises isodurene in an amount from 15 to 100 wt%.

090347 OCT 01 1990